

REMARKS

Claims 1 and 3 through 16 are in the application, with Claims 1 and 8 through 16 having been amended, with Claim 2 having been cancelled, and Claims 17 and 18 having been withdrawn. Claims 1 and 12 are the independent claims herein. No new matter has been added. Reconsideration and further examination are respectfully requested.

Double Patenting

Claims 2-7 have been rejected for obviousness-type double patenting over the claims of U.S. Patent No. 6,882,064. Although the propriety of this rejection is not conceded, Applicant intends to file a Terminal Disclaimer to obviate the double patenting rejection once the application is deemed otherwise in condition for allowance.

Claim Rejections Under 35 U.S.C. §112, Second Paragraph

Claims 13, 14 and 16 were rejected for alleged indefiniteness. Claims 13, 14 and 16 were rejected for their respective recitations of “substantially zero”, “substantially infinite”, and “substantially zero”. Each of Claims 13, 14 and 16 has been amended to remove these recitations.

Claim 13 has been amended to recite “wherein a capacitor coupled in series to the first capacitor switch contributes negligibly to a total capacitance of the plurality of capacitors if the first control circuit is set to the first threshold voltage”. This recitation is supported at least by the embodiment described at page 4, lines 14 and 15 of the present specification. Claims 14 and 16 have been amended to respectively indicate “setting the first control circuit to the first threshold voltage opens the first capacitor switch”, and “setting the second control circuit to the second threshold voltage closes the second capacitor switch”.

With regard to the term “negligibly” used in amended Claim 13, M.P.E.P §2173.05(b) notes: “[t]he fact that claim language, including terms of degree, may not be precise, does not automatically render the claim indefinite under 35 U.S.C. 112, second paragraph...Acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification.” Applicant submits that, in light of the specification and

the known characteristics of capacitors and transistors, one of ordinary skill in the art would understand the metes and bounds of amended Claim 13.

Withdrawal of the rejections under §112, second paragraph, is respectfully requested.

Claim Objections

Claims 8-11 have been amended to confirm their dependence from Claim 1. Also, the above amendments to Claim 1 are believed to provide antecedent basis for the term "the reset voltage" of Claim 7. Withdrawal of the objections to Claims 7-11 is respectfully requested.

With regard to the use of "coupling" in Claim 12, M.P.E.P. §2111.01 indicates that the words of a claim must be given their "plain meaning" unless they are defined in the specification. Applicant submits that page 5, lines 16-21 of the specification clearly define "couple" and "decouple" as referring to the creation and destruction of electrical connections between two elements and/or between an element and a signal. Moreover, control switches 113, 123 and 133 are illustrated (e.g., in FIG. 1) and described (e.g., at page 3, lines 22-24) as coupling a respective control circuit to a control signal. Accordingly, since the terms "coupling" and "decoupling" are clearly defined in the specification in a manner that is consistent with their usage in Claim 12, withdrawal of the objection to Claim 12 is respectfully requested. Since no other objections or rejections were presented with respect to Claim 12, Claim 12 and its associated dependent claims are believed to be in condition for allowance.

Claim Rejections in view of cited art

Claims 1 and 2 were rejected under 35 U.S.C. §102 as allegedly anticipated by U.S. Patent No. 5,332,997 (Dingwall); Claim 3 was rejected under 35 U.S.C. § 103 over U.S. Patent No. 6,574,288 (Welland) in view of U.S. Patent No. 5,600,187 (El-Hamamsy); Claims 7 and 9 were rejected under §103 over Welland in view of El-Hamamsy and further in view of U.S. Patent No. 4,259,746 (Sandstedt); Claims 15 and 16 were rejected under §103 over Welland in view of El-Hamamsy and Sandstedt and further in view of Dingwall; Claims 4 and 10 were rejected under §103 over Dingwall in view of Welland; and Claim 8 was rejected under §103 over Dingwall. Reconsideration and withdrawal of these rejections are respectfully requested.

Amended independent Claim 1 concerns a circuit including a plurality of capacitors coupled in parallel, a plurality of capacitor switches, each one of the capacitor switches coupled in series with a respective one of the plurality of capacitors, and a plurality of control circuits, each of the plurality of control circuits coupled to a respective one of the plurality of capacitor switches, to generate a respective control voltage, and to independently set a respective one of the plurality of capacitor switches to the respective control voltage. The circuit of Claim 1 also includes a plurality of control switches, each of the plurality of control switches to couple and to decouple a respective one of the plurality of control circuits to and from a control signal, and a plurality of sets of one or more control biasing circuits, each of the plurality of sets of one or more control biasing circuits to set a respective control voltage to one of a reset voltage, a first threshold voltage, and a second threshold voltage.

FIG. 1 illustrates one embodiment of amended independent Claim 1. Specifically, circuit 100 of FIG. 1 shows a plurality of capacitors 110, 120, 130, a plurality of capacitor switches 111, 121, 131, each of which is coupled in series with a respective one of capacitors 110, 120, 130, and a plurality of control circuits 112, 122, 132, each of which is coupled to a respective one of capacitor switches 111, 121, 131, is to generate a respective control voltage, and is to independently set a respective one of capacitor switches 111, 121, 131 to the respective control voltage.

Circuit 100 also includes control switches 113, 123, 133, each of which is to couple and to decouple a respective one of control circuits 112, 122, 132 to and from control signal $I_{control}$, and sets of control biasing circuits (114, 115, 116), (124, 125, 126), and (134, 135, 136), each of control biasing circuits (114, 115, 116), (124, 125, 126), and (134, 135, 136) to set a respective control voltage $V_{control1}$, $V_{control2}$, $V_{control3}$ to one of a reset voltage V_R , a first threshold voltage V_L , and a second threshold voltage V_H . As described in the present specification, some embodiments such as circuit 100 may provide a capacitance at node A that may be smoothly varied across a large range in response to a control signal and without significantly changing a Quality factor of a circuit that is coupled to node A.

The cited art is not seen to disclose or to suggest the foregoing features of amended independent Claim 1. For example, the art of record is not seen to disclose or to suggest the claimed plurality of capacitors coupled in parallel, plurality of capacitor switches, plurality of

control circuits, plurality of control switches, and plurality of sets of one or more control biasing circuits.

FIG. 2 of Dingwall was alleged to disclose the claimed plurality of capacitors (C0-C2) coupled in parallel, plurality of capacitor switches (M20-M25), plurality of control circuits (M10-M15), plurality of control switches (M30-M35), and plurality of sets of one or more control biasing circuits (B0-B5, CSi). Applicant submits that signals B0-B5 and CSi cannot be seen to disclose or to suggest the claimed sets of one or more control biasing circuits.

Specifically, the claimed control biasing circuits set a respective control voltage of a respective capacitor switch to one of a reset voltage, a first threshold voltage, and a second threshold voltage. FIG. 3 of Dingwall, however, clearly shows that each of signal lines B0-B5 and CSi carry only a high voltage signal or a low voltage signal. These signals are intended to close (high voltage signal) or open (low voltage signal) the transistors to which the signal lines are connected. As a result, signal lines B0-B5 and CSi cannot suggest providing a reset voltage to any of transistors M10-M15 as recited in amended Claim 1.

Claim 1 is therefore believed to be in condition for allowance. Claims 3-11 depend from Claim 1 and are believed to be allowable for at least the foregoing reasons. In this regard, Welland, El-Hamamsy or Sandstedt, taken alone or in any permissible combination, cannot be seen to disclose or suggest the claimed control biasing circuits to set a respective control voltage of a respective capacitor switch to one of a reset voltage, a first threshold voltage, and a second threshold voltage.

C O N C L U S I O N

The outstanding Office Action presents a number of characterizations regarding each of the applied references, some of which are not directly addressed herein because they are not related to the rejections of the independent claims. Applicant does not necessarily agree with the characterizations and reserve the right to further discuss those characterizations.

For at least the reasons given above, it is submitted that the entire application is in condition for allowance and such action is respectfully requested at the Examiner's earliest convenience. Alternatively, if there remains any question regarding the present application or any of the cited references, or if the Examiner has any further suggestions for expediting allowance of the present application, the Examiner is cordially requested to contact the undersigned via telephone at (203) 972-0049.

Respectfully submitted,

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